Illinois Department of Transportation
2300 South Dirksen Parkway / Springfield, Illinois / 62764

BDE PROCEDURE MEMORANDUM

NUMBER: 15-00

SUBJECT: Procedures to Minimize Motorists' Costs and Inconvenience

DATE: April 3, 2000

This memorandum supersedes BDE Procedure Memorandum 00-35 dated February 4, 2000.

Background

The following procedures promote increased use of measures to reduce delays and inconvenience for motorists during highway construction. The primary focus is on projects involving high volumes of traffic or severe impacts on businesses, however, some of the measures also are applicable to other types of projects. If used effectively, these measures will allow the Department to complete projects in a timely manner to meet the demands of increasing traffic and congestion while minimizing disruptions to the traveling public.

Applicability

The following procedures are applicable to construction or reconstruction projects on the state highway system, effective immediately.

Procedures

1. Additional Shoulder Thickness

   All new construction or reconstruction projects on the state system which involve the construction of new shoulders shall meet the guidelines described below. The additional shoulder thickness is intended to allow the shoulders to be used to carry traffic during current and future construction improvements.

   - 2-lane major principal arterials – These highways should normally have 8 foot to 10 foot paved shoulders. These shoulders could be used to carry traffic when needed. When the 20-year projected traffic exceeds 2000 multiple unit trucks (MU) per day or 10,000 Average Daily Traffic (ADT) the shoulders shall be constructed to the same thickness as the pavement. The 2000 MU threshold is based on the traffic that would require a shoulder thickness greater than 200mm (8 inches) to handle the occasional load.

- 4-lane highways – When the 20-year projected traffic exceeds 3000 MU's per day or 25,000 ADT, shoulders shall be built to the same thickness as the adjoining pavement. The MU threshold is based on the traffic that would require thicker pavement to carry the load. While the inside shoulder is only 1.8m (6 feet) wide and would not normally be used as a lane, it will still allow traffic to be shifted away from the closed lane for patching and paving operations. At locations where the 20 year projected ADT is less than 25,000 the traffic should be examined at peak times. If the expected one-way Vehicles Per Hour (VPH) exceeds 1700 the shoulder thickness shall be the same thickness as that of the pavement. When it is anticipated that the shoulders will be used for an extended period of time (more than 3 years) during the design life of the pavement, the shoulders shall be designed to pavement standards, utilizing the same pavement design, details and materials as the mainline pavement.

- Highways of 6 or more lanes – Build all shoulders as pavement, utilizing the same pavement design, details and materials as the mainline pavement. This will allow for keeping at least two, and in some cases, three lanes open at all times, as warranted by the high ADT on these types of highways.

2. Shoulder Resurfacing

Resurfacing projects on high volume routes shall require that once a lift of bituminous resurfacing is placed on a lane of pavement, the adjoining shoulder shall be resurfaced with an equal thickness before any other lane is resurfaced, for each lift of bituminous resurfacing. Significant delays occur when resurfacing through lanes due to the narrow width of the open traffic lane. Paving the shoulder at the same time enables the completion of one side entirely to provide for a wider lane width and a level surface when resurfacing the adjacent lane, thereby, improving the traffic flow.

Shoulders shall be resurfaced with a thickness equal to that of the adjoining lane before any adjacent lane(s) is resurfaced for each lift of resurfacing for:

- 2-lane highways where the existing ADT exceeds 10,000, where the peak one-way VPH exceeds 800, or where significant traffic delays are expected.

- Multi-lane highways other than interstates and expressways where the existing ADT exceeds 25,000, where the peak one-way VPH exceeds 1700, or where significant traffic delays are expected.

- All interstates and expressways.

When the above criteria are met, a specification shall be included to implement this requirement.

3. Expanded Use of Lane Rental Contracts

Lane rental is a contracting technique whereby either the contractor bids the number of days of work requiring lane closures as part of the contract, or the Department sets the number of days for which such closures are allowed. If the contractor finishes early, an incentive is paid. If the contractor exceeds the number of days allowed, a disincentive payment is deducted from the contract for each day the limit is exceeded. This type of contract forces the contractor to schedule resources and perform work in a more timely manner.

Contracts utilizing a lane rental specification should be considered on all high volume, multi-lane projects, such as interstates and expressways. A traffic capacity analysis for these projects should be completed to determine the level-of-service to be anticipated during construction. In addition, these projects shall have a queuing analysis completed to determine the anticipated traffic backups at different times during the day and week. Once a traffic capacity analysis and queuing analysis are complete a decision may be made on whether or not to use a lane rental specification. If a lane rental specification is used, this information will aid in determining the average road user benefit cost.

All interstate and expressway projects which involve patching shall include lane rental specifications. The lane rental specification must apply to the patching operation and may be applied to the whole project. A traffic capacity analysis and queuing analysis shall be prepared to determine the anticipated back-ups at different times during the day and week. This information is then used in determining the average road user benefit cost for purposes of developing the Lane Rental Specification.

4. Increased Use of Completion Date Contracts

As traffic volumes increase, so do the impacts to the motoring public and businesses during construction. To lessen these impacts, the use of Completion Date Contracts is encouraged as well as the use of Incentive/Disincentive specifications.

Completion Date Contracts and Completion Date Contracts with Incentive/Disincentive provisions shall be:

- Used on all multi-lane roadway projects with more than 25, 000 ADT.
- Used on all routes in urban areas where construction has the potential to severely impact the adjacent businesses.

- Considered on projects where there is a need to control the completion of the project. Projects where completion is anticipated in the fall of the year may require a completion date to help ensure the work is completed and does not extend over the winter period. Large projects which will be let in multiple contracts should contain provisions to keep the overall project on schedule. Completion dates shall also be used to avoid conflicts with special events.

Chapter 66 of the BDE Manual contains additional guidelines and instructions on the use of Completion Date Contracts and Incentive/Disincentive clauses.

5. Consolidation of Projects

During the annual and multi-year programming process and as Phase I work is initiated, future construction work on interstates and other highways on the principal arterial system shall be closely examined. Short sections of work, in close proximity to each other, and planned for completion over several years should be combined into one or more larger projects. To the extent possible, projects shall be scheduled so that they are completed in one construction season. Completion date and/or lane rental specifications should also be included when required. Smaller projects including shoulder work and patching shall be combined into single projects.

Every effort should be made to schedule and/or consolidate projects to provide more years of construction-free driving. This procedure is not intended to create “mega” projects, but to program work more effectively. Large projects should not all be let on the same letting, but it may be beneficial to let projects in the same area on consecutive lettings so work is completed during the same time period.

6. Prohibit Weekend Lane Closures

On roadways with ADT of 25,000 or more all lanes shall be open to traffic from 3:00 P.M. Friday to 12:00 midnight Sunday except where structure construction, or major rehabilitation makes it impractical. When patching and resurfacing are performed on these routes, lane closures are often in place and cause extensive backups. By restricting the work on weekends, all traffic lanes are available to accommodate the higher weekend volumes of traffic. Where the ADT exceeds 25,000 the construction plans shall contain the ADT on the cover sheet.

A traffic capacity analysis and a queuing analysis should still be completed. On some routes ADT’s may be lower on weekends and it would be beneficial to allow or require work on weekends. In these cases contracts should contain specification to allow such work.

Projects with less than 25,000 ADT on which traffic volumes are still relatively high, especially interstates, shall also have a traffic capacity analysis and a queuing analysis completed to evaluate the possible benefit of prohibiting weekend lane closures.

7. Additional Signage/Public Notification

On interstates, expressways and other high volume routes where traffic delays are anticipated during construction additional signage will be needed and efforts to notify the public shall be included.

a. Coordination. Coordinate work with local agencies, other districts, other states, other agencies, and with other contracts within the district to ensure alternate routes and detour routes will be free of construction during their use.

b. Advance Publicity. Provide advance publicity of all forthcoming interstate projects. This not only applies to large urban projects but also to smaller city and rural projects. Diversion of a portion of local commuter traffic will help even in rural areas. Advance publicity also can be valuable in other projects which have high impact/visibility to a community or to a travel corridor.

c. Preconstruction Signing. If practical, place changeable message signs in advance of construction projects on interstates and other high volume routes at least two weeks prior to work beginning. These signs will be used to alert motorists of the impending work, when it will start, expected delays, or other appropriate information that may encourage motorists to find alternative routes. Also, use newspapers, radio, and television to alert motorists of upcoming work.

d. Construction Signing. Erect changeable message signs during construction at appropriate exits in advance of lane closures to advise motorists when and where delays are expected. Provide alternative routing suggestions where a good alternative is available and significant delays are expected. Changeable message signs may need to be located before the closest exit if the best alternative route to avoid the delays is at a more distant exit. Fixed signs may also be necessary on the mainline to help convey alternative routing information. Proper signing also must be provided along the alternative route.

e. Additional signing. On projects where long delays are expected or the use of alternative routes is anticipated additional signing farther from the projects shall be included. Signs should be placed far enough from the beginning of the project so that motorists are informed of the construction work and possible delays to better prepare them for delays and to allow motorists to consider the use of alternative routes.

8. Night/Non-Peak Hour Construction

On high volume roadways the Traffic Management Analysis (TMA) should consider limiting construction to non-peak or nighttime hours. All TMA's prepared for roadways with greater than 25,000 ADT shall include a traffic capacity analysis and a queuing analysis. When the one-way VPH exceeds 1700 or the level of service (LOS) drops to E or F excessive back-ups will occur. Under these situations work should be restricted to other times of the day.

Once the traffic peaks and expected queues have been reviewed, the Traffic Control Plan can be developed. Under the above situations construction should not be permitted during certain time periods for each direction of travel. This provides the contractor with some flexibility in scheduling work.

Under certain conditions it may be beneficial to require work be done only at night. This decision should be made after close examination of the Traffic Capacity Analysis and Queuing Analysis. In cases where the traffic volumes remain high throughout the day but drop significantly during the night, where traffic delays would be continuous throughout the day, or to provide longer continuous work periods night construction should be considered.

Before requiring night construction, consider the following factors:

- Noise level ordinances that may prohibit certain construction activities at certain times.
- Noise and light impacts on the surrounding community.
- Neighborhood traffic impacts due to detours or alternative routes.
- Impacts to businesses.
- Community resistance.

When night construction is required by the contract, include the following:

- A lighting specification detailing the minimum lighting requirements.
- Additional signing and increased use of changeable message signs to alert traffic.
- Increased Public Relations efforts to notify the surrounding community.
- Restrictions to limit work hours to 7:00 P.M. to 6:00 A.M. Hours may be adjusted according to the traffic analysis.

9. Lane Closure Meetings

Each district shall institute periodic lane closure meetings. These meetings shall be held with counties, municipalities, and other agencies (i.e. Toll Highway Authority, etc.) within the district's boundaries and those immediately adjacent to the district. Meetings shall also be held with adjoining districts and states which may be impacted by future projects.

A Letter of Understanding with adjoining states is required for all projects that abut the state line.

Meetings should address future roadway improvements for both the district and the other agency which involve lane closures, lane restriction, stage construction, or detours. All parties should work to program projects to minimize conflicts. The result of these meetings should allow all parties involved to schedule projects so that fewer conflicts exist for motorists and to ensure alternate routes and detour routes will be free of construction during their use.

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